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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/063,754	05/10/2002	Thomas Francis McNulty	RD-29414	1569
6147	7590	07/01/2004	EXAMINER	
GENERAL ELECTRIC COMPANY GLOBAL RESEARCH PATENT DOCKET RM. BLDG. K1-4A59 SCHENECTADY, NY 12309			BLACKWELL RUDASIL, GWENDOLYN A	
			ART UNIT	PAPER NUMBER
			1775	

DATE MAILED: 07/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/063,754	Applicant(s) MCNULTY ET AL.	
	Examiner Gwendolyn A. Blackwell-Rudasill	Art Unit 1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-12 and 14-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-12 and 14-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 May 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 3-12, and 14-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent no. 5,976,247, Hansen et al, in view of United States Patent no. 4,102,666, Baumler et al, further in view of Japanese Patent Application Publication no. 63-236722, JP '722.

Hansen et al disclose a crucible, made from vitreous silica, Czochralski process, having an inner surface and an outer surface, (columns 2-3, lines 55-5). A substantially uniform and continuous cristobalite coating is formed on the surface of the crucible. The coated crucible can be used to temperatures up to about 2000°K (1727°C), (column 3, lines 37-56). The inner and outer coatings contain devitrification promoters such as alkaline earth metal cations and the

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lanthanides. The concentration of the alkaline earth metals, applied to a surface of the crucible, should not exceed about 50 mM per thousand square centimeters of the surface to be coated, (columns 5-6, lines 8-16). Because Hansen et al disclose that metal cations can be added to promote cristobalite formation, the claimed physical property of the article being chemically inert to halide gases and acids would be present in the prior art. Hansen et al do not disclose that the crucible is transparent or the thickness of the coating.

Baumler et al disclose a quartz glass element used in the production of semiconductor elements with an outer coating of cristobalite, (abstract), that can be used at high temperatures, (columns 3-4, lines 43-48). The thickness of the coatings is preferably less than 1% of the thickness of the wall of the quartz-glass element, (column 5, lines 2-36). In addition, calcium can be used as a crystallization promoter, (column 7, lines).

JP '722 disclose a clear quartz glass article used in the semiconductor industry wherein the glass article is coated with a solution containing a dopant that diffuse homogenously in the glass wherein the dopant induces the transformation of clear quartz into cristobalite, (abstract). Other dopants that can be used are Ca, Zn, Mg, Zr, Sn, P, and Sb, (page 3, first section, lines 1-2). The term "clear quartz glass" is considered synonymous with Applicant's limitation that the fused quartz article is transparent to visible light.

Hansen et al, Baumler et al, and JP '722 relate to inventions used in making semiconductor elements. JP '722 is used to show that it is commonly known in the art clear quartz glass articles can have the dopant of a coating solution diffuse homogenously into the glass to transform the quartz into a cristobalite crystal structure. It would have been obvious to one skilled in the art at the time of invention to utilize a transparent substrate as disclosed by JP

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'722 with the coating of Hansen et al or Baumler et al to create a clear quartz structure that avoids contamination and or heat distortion during the semiconductor manufacturing process, (JP '722, abstract).

Baumler et al demonstrate that the thickness of the coating is relative to the thickness of the quartz glass element. As such, absent a showing of criticality with respect to thickness (a result effective variable), it would have been obvious to a person of ordinary skill in the art at the time of the invention to adjust the thickness through routine experimentation in order to achieve varying degrees of protection for the crucible. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Response to Arguments

4. Applicant's arguments filed March 31, 2004 have been fully considered but they are not persuasive. Applicant contends that the combined references teach away from the formation of the cristobalite structure throughout the fused quartz body.

While Hansen et al and Baumler et al disclose the use of coatings to form a cristobalite layer on the crucible, JP '722 disclose the use of a coating containing a dopant wherein the dopant diffuses homogenously into the glass thereby inducing the transformation of clear quartz into cristobalite (JP '722, abstract). Because the coatings of Hansen et al and Baumler et al utilize coatings containing dopants which are also contained in the coating solution of JP '722 and it is demonstrated that the dopants used in the coating solution of JP '722 diffuse into the quartz glass to transform the quartz into cristobalite, it would logically follow that the coatings

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while transforming into a layer of cristobalite would also diffuse to a certain point to change the underlying quartz substrate into cristobalite.

As to the assertion that none of the references teach the formation of the cristobalite throughout the fused quartz body, it is noted that the features upon which applicant relies (i.e., the formation of the cristobalite structure throughout the fused quartz body) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Applicant has presently claimed that the cristobalite is formed within the quartz body, which is different from being formed throughout the quartz body.

5. Applicant also contends that the motivation to combine the references do not come from the references but from Applicant's specification, therefore there is not motivation or suggestion to combine the references.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, JP '722 provides the suggestion to combine the references, as JP '722 demonstrates that the use of certain dopants in a coating solution placed on a quartz glass substrate will diffuse the dopants into the quartz substrate changing the quartz to cristobalite. JP '722 discloses that a glass formed according to its disclosure can be used at elevated temperatures without heat

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distortion. It would have been within the skill within one of the art at the time of invention to use the transformed quartz part of JP '722 as the material for the quartz crucibles of Hansen et al and Baumlner et al in order to have a quartz crucible that will not distort due to high temperature use.

In light of the comments above, the 35 U.S.C. 103 rejection of claims 1, 3-12, and 14-27 are maintained.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gwendolyn A. Blackwell-Rudasill whose telephone number is

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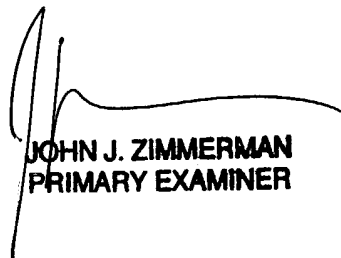
(571) 272-1533. The examiner can normally be reached on Monday - Thursday; 6:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gwendolyn A. Blackwell-Rudasill
Examiner
Art Unit 1775


gbr


JOHN J. ZIMMERMAN
PRIMARY EXAMINER